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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/894,674	06/28/2001	Holger Leonhardt	A-2773	6397

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EXAMINER	
POON, KING Y	
ART UNIT	**PAPER NUMBER**
2625	

DATE MAILED: 03/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/894,674	LEONHARDT, HOLGER	
	Examiner	Art Unit	
	King Y. Poon	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-10,12,13 and 16* is/are rejected.

7)☒ Claim(s) *5,11,14 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/25/2005 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 16 recites the limitation "third optical sensor and fourth optical sensor". There is insufficient antecedent basis for this limitation in the claim. It is unclear the third optical sensor and fourth optical sensor is included in the first optical sensor or the second optical sensor or in both the first and the second optical sensor.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-3, 7-9 rejected under 35 U.S.C. 103(a) as being unpatentable over Loffler (US 6,429,9450, DE 44 01 900 C2) in view of Ohigashi et al (US 4,965,597).

Regarding claim 1, Regarding claim 1, Loffler teaches a method for determining a position of a printing image on a piece of printed material in a printing machine (column 4, lines 3-4, position of image relative to edge of paper is determined), which comprises the steps of: acquiring, by an optical sensor (fig. 1, image scanner 23), a mark disposed on the piece of printed material (column 3, line 66 - column 4, line 5, image scanner 23 scans the electrical image, i.e. the entire sheet with marks comprising an image); acquiring, by an optical sensor (fig. 1, image scanner 23), an edge of the piece of printed material (column 3, line 66 - column 4, line 5, image scanner 23 scans the electrical image, i.e. the entire sheet with edges of sheets); and calculating, by an evaluation unit (fig. 1, steering or control device 14), a spaced distance of the mark from the edge (column 4, lines 37-41, evaluation unit 14 computes the exact position of the image with the parameter, i.e. the edge, of the sheet 11. The evaluation unit 14, in column 3, lines 10-13 & column 4, lines 41-43, measures the distance values to compare to a nominal distance).

Loffler does not teach wherein the sensing of the mark and the edge is accomplished by two separate sensors, one for sensing the mark disposed on the printed material and the other for sensing the edge of the printed material.

However, Ohigashi et al. teach one optical sensor for acquiring a mark disposed on a piece of printed material (column 5, lines 10-16, mark sensor 10 senses registration marks on a recording paper 4), and another optical sensor for acquiring an edge of the piece of printed material (column 5, lines 7-10, edge sensor 8 senses edge of a recording paper 43).

Accordingly, it would have been obvious to one skilled in the art at the time of the invention to have used the two separate sensors taught by Ohigashi et al. in the method for determining the position of an image mark relative to the edge of the sheet taught by Loffler because the teachings of Ohigashi et al. allow for additional devices to accomplish the sensing of the edge and mark, which provides design flexibility. Additionally, the substitution of the two sensors taught by Ohigashi et al. for the single scanner/sensor taught by Loffler reduces the cost of the method taught by Loffler because it eliminates the need for scanning the entire surface of the sheet and to increase speed.

Regarding claim 2, the claim rejection of claim 1 is representative of claim 2. See Loffler method teachings which include comparing the spaced distance of the mark, which has been calculated by the evaluation unit, with a prescribed nominal spaced distance (column 4, lines 41-43, the image position data are checked against nominal values), and emitting an output signal if the calculated spaced distance deviates from the nominal spaced distance by more than a prescribed value (column 4, lines 43-48, if difference between calculated and nominal distances is outside the tolerance, i.e.

deviates by more than a prescribed value, then position correction data are output, i.e. an output signal is emitted).

Regarding 3, the claim rejection of claim 2 is representative of claim 3. See Loffler method teachings which include forming the output signal as a positioning signal, and feeding the positioning signal to an adjustment device (fig. 1, mother control 8) for controlling positioning organs (fig. 1, front stop 22 and side stop 21) for determining the position of the piece of printing material in the printing machine (column 4, lines 43-48, if difference between calculated and nominal distances is outside the tolerance, i.e. deviates by more than a prescribed value, then position correction data are output to the adjustment device 8, i.e. an output positioning signal is emitted, which resets the positioning organs 21 and 22 to acceptable tolerances).

Regarding claim 7, the claim rejection of claim 1 is representative of claim 7. See Ohigashi method teachings which includes providing as the mark a reference mark (column 5, lines 10-11, marks sensed by sensor 10 are registration marks) for adjusting partial printing images.

Regarding claim 8, the claim rejection of claim 1 is representative of claim 8. See Loffler method teachings which includes storing the spaced distance for taking it into account in a further processing of the piece of printing material (column4, lines 35-36, position data, i.e. space distance, is received by device for further processing, which inherently requires storing the distance in memory in order to enable data transfers).

Regarding claim 9, the claim rejection of claim 1 is representative of claim 9. See Loffler method teachings which includes taking over a target spacing of the mark from

the edge of the sheet from a printing pre-stage (column 4, lines 35-48, position data is reset to allowed distance).

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Loffler (US 6,429,945) & Ohigashi et al. (US 4,965,597) as applied to claim 1 above, and further in view of Foote et al. (US 6,008,826).

Regarding claim 4. Loffler & Ohigashi et al. teach the method according to claim 1, but do not teach the method which includes moving the piece of printed material past the first and the second optical sensor in a prescribed direction of motion and with a predetermined velocity, determining the spaced distance between the first and the second optical sensor in the direction of motion, determining the time span between acquiring the edge and acquiring the mark, and calculating a spaced distance of the edge from he mark from the time span, the spaced distance between the optical sensors, and the velocity.

However, Foote et al. teach an alignment method which includes moving the piece of printed material past the an optical sensor (fig. 2, optical sensor 50) in a prescribed direction of motion (fig 2, prescribed motion 53) and with a predetermined velocity (column 6, line 4, speed of transfer belt 22), determining the time span between acquiring a reference mark and acquiring another mark (column 5, lines 34-43, timing error is determined between reference mark and another mark), and calculating a spaced distance of the edge from the mark, from the time span, and the velocity

(column 6, lines 1-7, distance between the reference mark and the other mark is calculated by multiply the timing error by the predetermined speed of the belt).

Accordingly, it would have been obvious to use the distance calculation between two image elements as taught by Foote et al. in the method for determining the distance between an edge and image mark as taught by Loffler & Ohigashi et al. because it allows the recording sheet to travel through the printer while the adjustment is being made instead of having to stop the recording sheet for making an adjustment as taught by the adjustment method in Loffler.

In addition, determining the distance between the two sensors is not expressly taught by any one of or the combination of Lofler, Ohigashi et al., and Foote et al.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to account for the direction of motion distance between the two sensors taught by Ohigashi et al. in the calculation of the distance between two image elements as taught by Foote et al., otherwise the direction of motion distance calculation taught by Foote et al. would be off by the direction of motion distance between the two sensors taught by Ohigashi et al.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Loffler (US 6,429,945) & Ohigashi et al. (US 4,965,597) as applied to claim 1 above, and further in view of deJong et al. (US 5,510,877).

Regarding claim 6, Loffler & Ohigashi et al. teach the method according to claim 1, but do not teach method which includes storing the spaced distance of the mark from

the edge of a plurality of pieces of printed material, and determining a mean value for the spaced distance of the mark.

However, deJong et al. teach an image registration/alignment method for determining and controlling an image in a printing apparatus that stores registration data for multiple pages by continuously edge sensing for correcting alignment which would include several pages of image alignment, and then determining a moving average based on the registration data (column 8, lines 13-32).

Accordingly, it would have been obvious to one skilled in the art at the time of the invention to have used the moving average registration/alignment system taught by deJong et al. in the edge-to-mark distance correction taught by Loffler & Ohigashi et al. because it provides a consistent method for alignment subsequent images based on historical alignment data.

9. Claims 10, 12, 13 & 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Loffler (US 6,429,945) & Ohigashi et al. (US 4,965,597) & Foote et al. (US 6,008,826).

Regarding claim 10, Loffler teaches a device for a printing machine (fig. 1, "printing machine") comprising: a transport device for moving a piece of printing material in a prescribed direction of motion (column 3, lines 60-61, sheet transport means (not shown)), an optical sensor (fig 1, image scanner 23) for acquiring a mark disposed on the piece of printing material (column 3, line 66 - column 4, line 5, image scanner 23 scans the electrical image, i.e. the entire sheet with marks comprising an image); an

optical sensor (fig 1, image scanner 23) for acquiring an edge of the piece of printing material (column 3, line 66 - column 4, line 5, image scanner 23 scans the electrical image, ie. The entire sheet with edges of sheets); and an evaluation unit (fig 1, steering or control device 14), for calculating: a spaced distance of the mark from the edge (column 4, lines 37-41, evaluation unit 14 computes the exact position of the image with the parameter, i.e. the edge, of the sheet 11. The evaluation unit 14, in column 3, lines 10-13 & column 4, lines 41-43, measures the distance values to compare to a nominal distance), at least one of the velocity and the position of the piece of printing material (column 4, lines 35-48, position of sheet is derived from positions of stops 21 and 22)

Loffler does not teach wherein the sensing of the mark and the edge is accomplished by two separate sensors, one for sensing the mark disposed on the printed material and the other for sensing the edge of the printed material.

However, Ohigashi et al. teach one optical sensor for acquiring a mark disposed on a piece of printed material (column 5, lines 10-1 6, mark sensor 10 senses registration marks on a recording paper 4), and another optical sensor for acquiring an edge of the piece of printed material (column 5, lines 7-10, edge sensor 8 senses edge of a recording paper 4).

Accordingly, it would have been obvious to one skilled in the art at the time of the invention to have used the two separate sensors taught by Ohigashi et al. in the method for determining the position of an image mark relative to the edge of the sheet taught by Loffler because the teachings of Ohigashi et al. allow for additional devices to accomplish the sensing of the edge and mark, which provides design flexibility.

Additionally, the substitution of the two sensors taught by Ohigashi et al. for the single scanner/sensor taught by Loffler reduces the cost of the method taught by Loffler because it eliminates the need for scanning the entire surface of the sheet.

Furthermore, Loffler & Ohigashi et al. do not teach an acquisition unit for determining the velocity of the piece of printing material, nor do they teach wherein calculating the spaced distance between said mark and said edge is accomplished by using the chronological spacing between acquiring said edge and acquiring said mark, nor do they teach calculating the determined spaced distance between said first and said second optical sensor, said spaced distance being parallel to the direction of motion of the piece of printing material.

However, Foote et al. teach wherein calculating the spaced distance between said mark and said edge is accomplished by using an acquired velocity of the piece of printing material and the chronological spacing between acquiring said edge and acquiring said mark (fig 2, the piece of printed material past the optical sensor 50 in a prescribed direction of motion 53 and with a predetermined velocity, i.e. speed of transfer belt in column 6, line 4, and, column 5, lines 34-43, the timing error, i.e. chronological spacing between acquiring two sensed objects, is determined between reference mark and another mark).

Accordingly, it would have been obvious to use the distance calculation between two image elements as taught by Foote et al. in the method for determining the distance between an edge and image mark as taught by Loffler & Ohigashi et al. because it allows the recording sheet to travel through the printer while the adjustment is being

made instead of having to stop the recording sheet for making an adjustment as taught by the adjustment method in Loffler.

In addition, determining the distance between the two sensors is not expressly taught by any one of or the combination of Loffler, Ohigashi et al. and Foote et al.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to account for the direction of motion distance between the two sensors taught by Ohigashi et al. in the calculation of the distance between two image elements as taught by Foote et al., otherwise the direction of motion distance calculation taught by Foote et al. would be off by the direction of motion distance between the two sensors taught by Ohigashi et al.

Regarding claim 12, the claim rejection of claim 10 is representative of claim 12.. See Ohigashi et al. wherein said first and said second optical sensor are disposed on one structural member or component (fig 1, the two sensors are attached to an internal frame of the color recording apparatus. Also, since the sensors replace the scanner taught by Loffler, it follows that they would be disposed on the same structural member).

Regarding claim 13, the claim rejection of claim 10 is representative of claim 13. See Loffler including a movement device for moving one of said first, said second, said third, and said fourth optical sensors (column 4, line 66 - column 4, line 3, image scanner, i.e. first and second sensor scans, i.e., has a built-in movement device to scan the image).

Regarding claim 16: Ohigashi teaches a third optical sensor for acquire a further mark disposed on the piece of printing material and a fourth sensor for acquiring the edge of the piece of printing material (column 17, lines 39-42, column 17, lines 50-55).

Allowable Subject Matter

10. Claims 5, 11, 14, 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

With respect to applicant's argument that there are no motivation to modified Loeffler because of limited space and a bent surface of the present invention; has been considered.

In reply: It appears that the bent surface and limited space is not part of the claimed limitations although applicant is having a different opinion, page 11, lines 6-13, amendment filed on 11/25/2005.

In response to applicant's argument that the prior art does not teach every limitations because there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*,

837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the suggestion to combine is based on knowledge generally available to one of ordinary skill in the art.

The modification to Loeffler is the use two sensors to perform two different functions instead of using just one. It is common knowledge to a person with ordinary skill in all art (including this art) that (assuming) there are job A and job B to be performed in two different places. Most rational people would recognize that it is must faster and easier to have one person to do job A and another person to do job B instead of having just one person to do both jobs because job A and B can be simultaneously performed by two persons. Therefore, most company would increase his staff if there are jobs to be done quickly and increasing staff members would allow many jobs to be performed simultaneously. Similarly, most company would increases equipments to speed up a process that requires functions that can be performed by just one equipment. In this case, the adding of the additional sensors would clearly speed up the scanning process because there are more than one event to be sensed.

Furthermore, applicant disclosed that there are four sensors to be used in applicant's invention. If the number of sensors is so important to the present invention, the examiner don't know why the third and the forth sensors is not being claimed in the independent claims.

According to 35 U.S.C. 112, second paragraph, essential elements cannot be omitted, See MPEP § 2172.01.

Therefore, from the claimed invention, the examiner concluded that the number of sensors used is not important to the invention so long as the image and the edge are detected. Also see MPEP 2144.04, duplication of parts.

Furthermore, Ohigashi et al. teach one optical sensor for acquiring a mark disposed on a piece of printed material (column 5, lines 10-16, mark sensor 10 senses registration marks on a recording paper 4), and another optical sensor for acquiring an edge of the piece of printed material (column 5, lines 7-10, edge sensor 8 senses edge of a recording paper 43.

Therefore, Ohigashi teaches the arrangement: one optical sensor for acquiring a mark disposed on a piece of printed material, and another optical sensor for acquiring an edge of the piece of printed material; is desirable to be used in a similar system that detects an edge of a sheet and an image formed on the sheet because Ohigashi teaches such arrangement.

If applicant disagrees, applicant could point out which part of the claimed invention or what arrangement of the applicant's invention is not desirable to be used in a similar system that detects an edge of a sheet and an image formed on the sheet, to prove that the examiner's statement is false.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to King Y. Poon whose telephone number is 571-272-7440. The examiner can normally be reached on Mon-Fri 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edwards Coles can be reached on 571-272-7402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 25, 2006

KING Y. POON
PRIMARY EXAMINER